

MISSOURI CONSERVATIONIST

VOLUME 79, ISSUE 2, FEBRUARY 2018
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dad"**



Bethany
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**"Awesome
trail!"**



Busch
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Range

**"Sharpening
my skills
for hunting
season :)"**



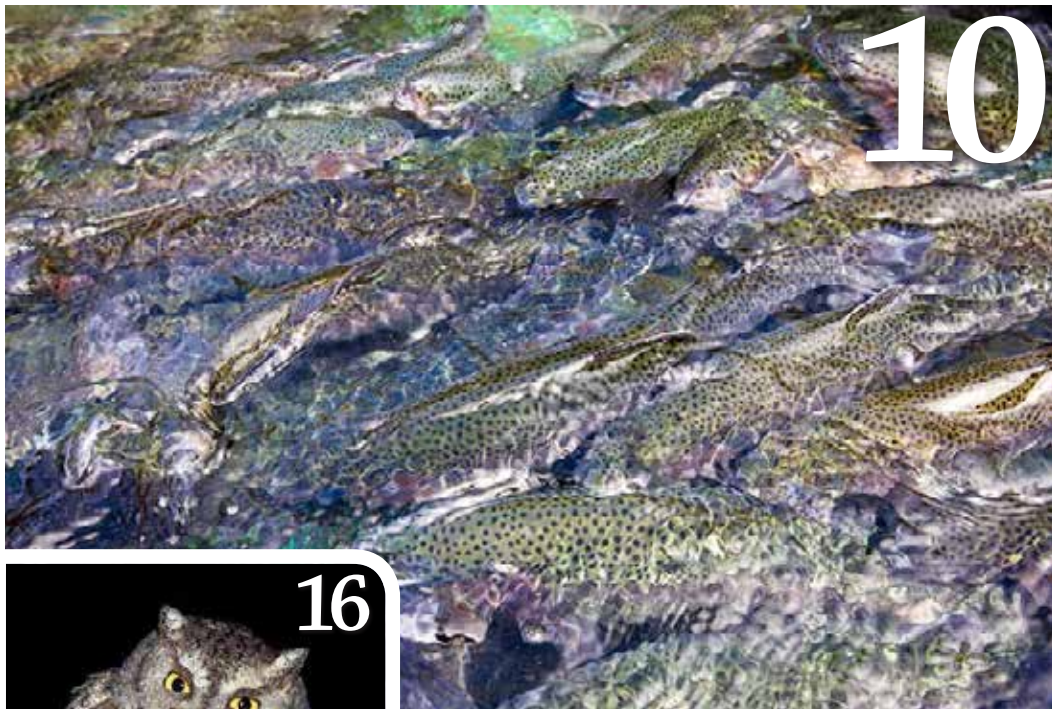
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MISSOURI CONSERVATIONIST



ON THE COVER

A red-morph eastern
screech-owl perches
on a branch.

by MARK SULLIVAN

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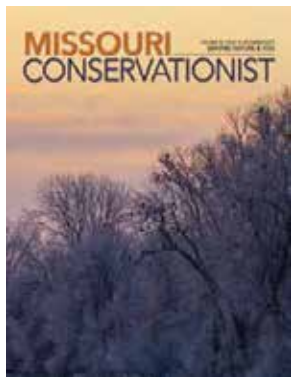
Inbox



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

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DECEMBER ISSUE

The December issue was very intriguing. I always enjoy it, but this issue was especially interesting. Thank you so much for providing this publication.

Jay Baker
via Facebook

UP FRONT WITH SARA PARKER PAULEY

I enjoyed reading *Up Front* in the *Missouri Conservationist* [December, Page 3]. Your granny sounds like she was such a cool lady. How blessed you were to have had her in your life.

Kelly Potter Greenville

I enjoyed your Granny Elma story. I had a very similar Granny Mabel, and it brought back many memories of her. We always look forward to our *Conservationist*, although my wife requires me to read it first to be sure there are no snake pictures in it. I've seen it fly across the room when I missed one.

Mark Critchfield Columbia

FANS FROM AFAR

Although I live in Wisconsin, I am an avid reader of the *Missouri Conservationist*. Our daughter and family live in Rolla and have gifted me a subscription for the past six years. I am an avid wildlife photographer and enjoy your photos as well as the nature articles. I learn at least one new thing from each issue.

John Dart North Fond du Lac, Wisconsin

I live in the northwest lower peninsula of Michigan. A friend of mine sends me the *Missouri Conservationist* regularly, and I look forward to reading it. The magazine's new format is terrific. I don't know of a better magazine anywhere. Keep up the great job.

Larry Demny Michigan

MARSH BIRDS

I'm writing on behalf of the Missouri Bird Records Committee and our sponsor, the Audubon Society of Missouri, to express my appreciation for the fine article, *Secretive Marsh Birds* [November, Page 10], and the beautiful Virginia rail cover photo. For most folks, these are among the least known of all our birds, and they deserve this kind of publicity. More



Virginia rail

knowledge of the rich wildlife in our wetlands will surely help persuade people that wetlands are worth preserving and even recreating where possible.

Bill Rowe, Missouri Bird Records Committee St. Louis

OUR FORESTS AT WORK

My wife and I traveled to Mendoza, Argentina, and toured several large production wineries. The guide commented about the large number of barrels they buy from the United States and asked if anyone knew where they came from. I told him Perryville, Missouri, and he was astonished anyone would know the specifics. He asked how I knew, and I said I only live about 30 miles from Perryville. Great article, and I remember the large warehouses full of Missouri oak barrels floor to ceiling.

Dave Beasley Jackson

JANUARY ISSUE

Loved this issue. Just gave me all the pertinent facts about our great MDC. Great pictures and good stats. Keep up the good work the MDC has been doing since I moved to Missouri in 1948. Yes, I am going on 90 years of age.

Frank S. Thomas III Ballwin

The fern frost patterns on January's cover are captivating in their exquisite beauty!

Helen Holbrook via email

I really liked the *Get Outside* spread [Pages 28-29] and *Places to Go* [Pages 30-31]. The photos are always exceptional. I have enjoyed the magazine for the 43 years we have been Missourians.

Dianne Larson via email

NOFPADOL PAOTHOONG

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on your Instagram photos.



1

1 | Outdoor adventure
on Hughes Mountain
by [rozzie91](#), via
Instagram

2 | Gartersnakes
by [Francis Rehmer](#),
via email

3 | Snow geese
at Ten Mile Pond
Conservation Area by
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2



3

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Marilynn
Bradford



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Murphy



Nicole
Wood



Up Front

with Sara Parker Pauley

✳ By the time February rolls around, it seems like most people are tired of winter and ready for the warm rays of summer. I vividly remember the first week of school after summer break when the teacher would ask us about our summer vacation. There were lots of Disney Worlds and Colorado mountains or some tropical destination, but my report was often the same. I would colorfully recount my family's annual pilgrimage to Bryant Creek in Douglas County to camp, fish, and explore wild Missouri.

Each summer, a generous family would allow us to camp on their property in Douglas County, and we lovingly named the area Squeaky Hollow. It got the memorable name because two old sycamores would scrape together in the wind and create an eerie sound, which made us think the headless horseman would be riding up to our campfire at any minute. It was there at Squeaky Hollow where I first heard the wild, monkey-like call of the barred owl — a sound that seemed more fitting for the jungle than southwest Missouri (learn about the eastern screech-owl on Page 16).

I was captivated as a kid by the barred owl's call and still find it fascinating to this day, especially in spring when I might hear an old gobbler answer back with a call of his own. Now that is true music to my ears! It means spring has finally arrived after a long, cold winter, and with it, the music of the woods befitting a new season. I'll be listening closely for the call. I hope you will be, too.

Sara Parker Pauley

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Printed with soy ink



mdc.mo.gov 3

Nature LAB

by Bonnie Chasteen

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

FISHERIES MANAGEMENT

Fish-Tag Rewards

✳ When Resource Scientist Kyle Winders receives a fish tag, he gives the angler a call and then sends a follow-up report. “Anglers show a lot of interest in how many fish were tagged, the results, and the knowledge we’ll gain from this study.”

The tag-reward study aims to assess exploitation rates for blue catfish and flathead catfish on the Missouri and Mississippi rivers. “One of the big questions is to estimate what percentage of the fish population is harvested every year,” Winders said.

To answer this question, Winders and his team electrofished blue catfish and flathead catfish from the Missouri and Mississippi rivers. Then they tagged the fish with rewards of \$25 or \$150 and a phone number for reporting tags.

“The difference in reward values will help us calculate nonreporting,” Winders said. His team reckons the higher reward value will prompt more tag returns.

The study’s data will help MDC determine whether to adjust regulations to meet management objectives. One objective is to maintain or increase the number of large blue catfish and flathead catfish — for example, those that are 20 pounds or heavier.



MDC biologists collect, tag, and release catfish back into the Missouri and Mississippi rivers to gather growth, movement, and harvest-rate data.



Study of blue catfish and flathead catfish exploitation rates will help MDC increase the quality of Missouri and Mississippi river fisheries

On the Mississippi River, where commercial harvest is permitted, another objective is to increase yield or total weight of fish available for harvest. Commercial angler Dale Gibler fishes the Mississippi. “I think it’s neat,” he said of the tag-reward program. “I’m a big duck hunter, so it’s like shooting a banded duck. It helps track the population.”

The final report will be completed in 2019, but the study is funded to reward all returned tags.

Fish-Tagging Study at a Glance

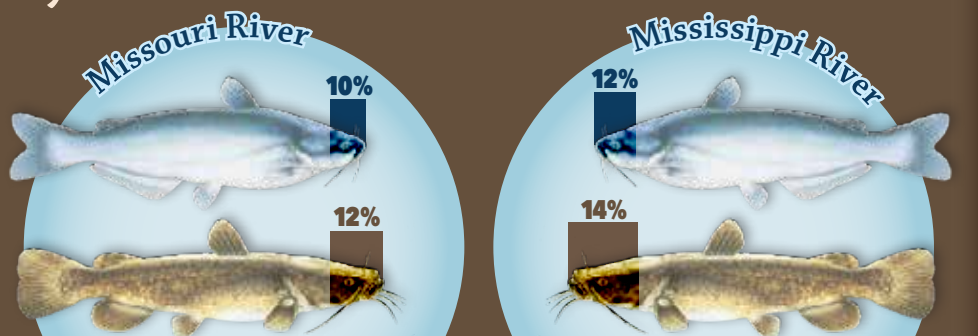


Dates of Study: 2015-2019

Goal: Improve quality of Missouri and Mississippi river fisheries

Annual Harvest Rates

(These are preliminary estimates and likely to change)

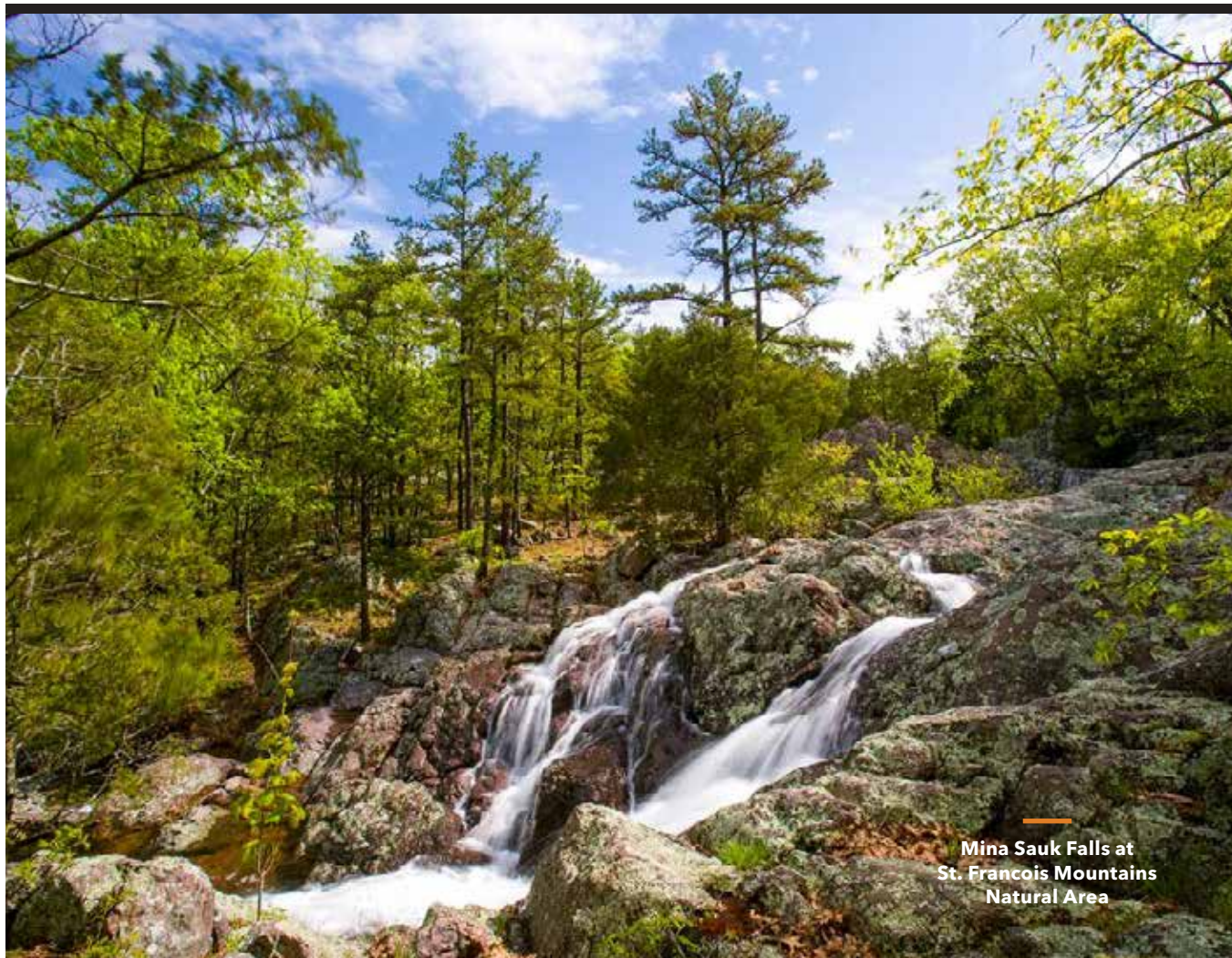


BLUE CATFISH FLATHEAD CATFISH

Browse more research projects at research.mdc.mo.gov

In Brief

News and updates from MDC



MDC EARNS SUSTAINABLE FORESTRY CERTIFICATION

SFI CERTIFICATION
CONFIRMS MDC
FOREST MANAGEMENT
PRACTICES ARE SOUND
AND COMPREHENSIVE

➔ MDC recently received certification from the Sustainable Forestry Initiative (SFI) for sustainable forestry practices on more than 653,000 acres of state land. SFI is one of the world's most recognized independent third-party forest management certification standards.

"Certification to SFI considers all aspects of our forest management process — from our actions taken in the woods to the paperwork we keep in our files," said MDC State Forester Lisa Allen. "We are extremely proud to achieve this certification, which means we have outside validation that we are properly managing our forest resources to ensure their health and sustainability."

SFI certification is based on principles, goals, and performance measures that were developed nationally by professional foresters, conservationists, and others with the intention of promoting sustainable forest management in North America. SFI and its many partners work together to balance environmental, economic, and social objectives, such as conservation of wildlife habitat and biodiversity, harvesting forest products, protecting water quality, providing forest industry jobs, and developing recreational opportunities. The SFI Forest Management Standard is also the only standard that requires participants to support forestry research. For more information, visit sfiprogram.org.

COMMISSION PASSES 2018 DEER, TURKEY HUNTING DATES

During its regular Dec. 15 meeting, the Missouri Conservation Commission approved MDC's recommendations for the 2018-2019 turkey and deer hunting season dates.

2018 Spring Turkey Hunting Dates

- Youth portion: April 7-8
- Regular turkey season: April 16-May 6

2018 Fall Turkey Hunting Dates

- Archery season: Sept. 15-Nov. 9 and Nov. 21-Jan. 15, 2019
- Firearms turkey season: Oct. 1-31

2018-2019 Fall Deer Hunting Dates

- Archery deer: Sept. 15-Nov. 9 and Nov. 21-Jan. 15, 2019
- Firearms deer early youth portion: Oct. 27-28
- Firearms deer November portion: Nov. 10-20
- Firearms deer late youth portion: Nov. 23-25
- Firearms deer antlerless portion: Nov. 30-Dec. 2
- Firearms deer alternative methods portion: Dec. 22-Jan. 1, 2019

Details on hunting regulations, harvest limits, allowed methods, required permits, and other related information will be available in the *2018 Spring Turkey Hunting Regulations and Information* and the *2018 Fall Deer & Turkey Hunting Regulations and Information* booklets. Both will be available where permits are sold, at MDC regional offices, and online at short.mdc.mo.gov/ZZf.

Buy Missouri hunting permits from numerous vendors around the state, online at mdc.mo.gov/buypermits, or through our free mobile app, MO Hunting, which is available for download through Google Play for Android devices or the App Store for Apple devices.

TROUT OPENER COMING MARCH 1

Anglers, mark your calendars! March 1 is the annual opening of catch-and-keep trout fishing at Bennett Spring State Park near Lebanon, Montauk State Park near Licking, Roaring River State Park near Cassville, and Maramec Spring Park near St. James. The catch-and-keep season at the trout parks runs through Oct. 31.

Trout anglers will need a daily trout tag to fish in Missouri's trout parks. Daily trout tags can only be purchased at each of the four trout parks. Missouri

residents age 16 through 64 also need a fishing permit in addition to the daily tag. Nonresidents 16 and older also need a fishing permit.

For more information on trout fishing in Missouri, visit short.mdc.mo.gov/Z5r.



Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov or call 573-522-4115, ext. 3848.

Q. I regularly travel the highways of Missouri, Kansas, and Illinois. Last February, I noticed more dead skunks on the roads than I normally see in an entire summer. Was there a population explosion? Were warmer temperatures the culprit? Or was there another possible cause?

➔ The mating season for striped skunks begins in late February and extends through March. As skunks emerge from their winter dens and search for food and mates, they venture onto roadways. Males always travel more than females, and during the breeding season, they may go as far as 4-5 miles a night.

Furbearer biologists believe the striped skunk population is stable to slightly increasing.

Q. I will be 65 years old in June of this year. Do I need a fishing license if I go fishing at the lakes and rivers before June?

➔ Yes. However, once you reach your 65th birthday, a permit is no longer needed if you are a Missouri resident. To prove age and residence, a driver's license will suffice.

To stay on the right side of the regulations, you should be aware that a daily trout



Striped skunk

fishing tag and a trout permit must be purchased when and where required. Missouri is home to four trout parks — Meramec Spring, Bennett Spring, Montauk, and Roaring River — which are stocked daily from March through October. While fishing inside these trout parks during these months, senior anglers will need to purchase the \$3 daily trout tag.

For trout waters outside of the trout parks, a \$7 trout permit is needed to possess trout. The \$7 permit is also needed for the catch-and-release season — November through February — in the four parks.

For more detailed information about Missouri's fishing regulations, and to learn how to purchase permits, visit short.mdc.mo.gov/ZS4.

Q. I found these marks on a tree in the woods on my land. Do you know what may have made them?

➔ These are probably from a buck. They are caused by a male deer using its brow tines — the innermost tines, closest to the base of the skull — to gouge the tree as it moves its head up and down. Bucks use shrubs and saplings to rub the velvet off their antlers. Scientists believe it serves as a way to mark territory and practice combat.

Antler growth starts in April or May. During the growth period, the soft skin and short hair covering the antlers have a plush quality, giving this stage the name "velvet." By August and September, testosterone increases, causing the antlers to calcify and the velvet to shed. A buck will continue rubbing to leave his scent and visually mark his territory. As a result, the antlers become polished.

Although a buck can make rubs of any size, large ones positioned higher on a tree tend to indicate an older male.



White-tailed deer in velvet

AGENT ADVICE

from

Sarah Ettinger-Dietzel

IRON COUNTY
CONSERVATION AGENT

February is a time of transition in Missouri. We might experience the warmth of a spring-like day one minute, then old man winter rears his ugly head the next, reminding us he's not done yet. Don't let the lure of the warm sunshine and mild temperatures make you complacent when heading outdoors to shake off those winter blues. Make a game plan. Tell someone where you're going and how long you plan to stay. Be prepared by using the acronym COLD.

1. **Cover** your head.
2. **Overexertion** — avoid it. Sweating in the cold is bad.
3. **Layers** are good — dress in lightweight, loose-fitting clothes.
4. **Dry** is also good — carry extra clothes in case you get wet.



What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.





—
Watch a video
for this recipe at
short.mdc.mo.gov/ZTs

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CAJUN DUCK GUMBO

If you're getting tired of using the same duck recipes over and over, this one will add a bit of spice to your diet. If your family likes their food spicy, they're sure to enjoy this Cajun-style meal.

Serves 6

Roux:

- ¾ cup oil
- ¾ cup all-purpose flour

Broth:

- 4-5 medium ducks, skinned
- 1 medium onion, chopped
- 2 carrots, cut into 2-inch pieces
- 1 bay leaf
- 1-2 qts. water
- 3 medium onions
- 2 tablespoons
Worcester sauce
- 3 medium peppers
- 1 tablespoon salt
- 2 cups celery
- 2 tablespoons pepper
- 1 clove minced garlic
- ½ teaspoon oregano
- ½ teaspoon thyme
- 1 10-oz. bag of okra OR
gumbo vegetables
- 1 28-oz. can whole
tomatoes – drained, cut up

COMBINE skinned ducks, onion, carrots, and a bay leaf in a large stock pot, adding enough water to cover the ducks. Bring to a boil, then reduce the heat, cover, and simmer for 1 to 1½ hours.

REMOVE the ducks, strain and reserve the broth. Discard the vegetables.

REMOVE the duck meat from bones and cut it into small pieces. Skim the broth, measure 1 quart and set aside.

HEAT OIL in a large pot over medium heat, and blend in flour. Cook, stirring constantly, until the roux is golden brown, around 30 minutes.

STIR in onions, pepper, celery, and garlic. Cook, stirring constantly, until vegetables are tender.

ADD duck meat, reserved broth, and remaining ingredients except the okra. Heat to boiling, stirring occasionally. Reduce heat and simmer uncovered for about 30 minutes.

STIR in okra, simmer another 30 minutes and serve over hot, cooked rice.



APPLY ONLINE FOR SPRING MANAGED TURKEY HUNTS

Missouri youth, archery, and firearms turkey hunters can apply online for our 2018 spring turkey managed hunts Feb. 1 through Feb. 28 at mdc.mo.gov/springturkey-hunts. Managed hunt details and application procedures are outlined on the web page. Drawing results will be posted March 12–May 6.

What IS it? GROUNDHOG

Groundhogs (*Marmota monax*), also known as woodchucks or whistle pigs, are one of Missouri's best-known wild mammals. They dig burrows between timbered areas and open land or along fencerows, heavily vegetated gullies, or streams, and they hibernate from October through February. When the groundhog emerges from its winter slumber, legend says if it sees its shadow, we'll have six more weeks of winter. No shadow means an early spring.

Photograph by Jim Rathert



A photograph of five anglers standing on a rocky ledge overlooking a waterfall. They are wearing waders and carrying fishing nets. The background shows a dense forest of bare trees. The title "Missouri's Coldwater" is overlaid in a large, white, serif font. The word "Missouri's" is in a script font, and "Coldwater" is in a bold serif font.

Missouri's Coldwater

by Francis Skalicky | photographs by David Stonner

Trout opener at Bennett
Spring State Park

PHOTOGRAPH BY
DAVID STONNER



Hatcheries

RAISING TROUT FOR MISSOURI WATERWAYS IS A LABOR OF LOVE

Ben Havens watched rainbow trout swim in water clear enough to read through and reflected on the significance of his job as a hatchery manager. The work, he said, is as much about providing memories as it is about producing fish.

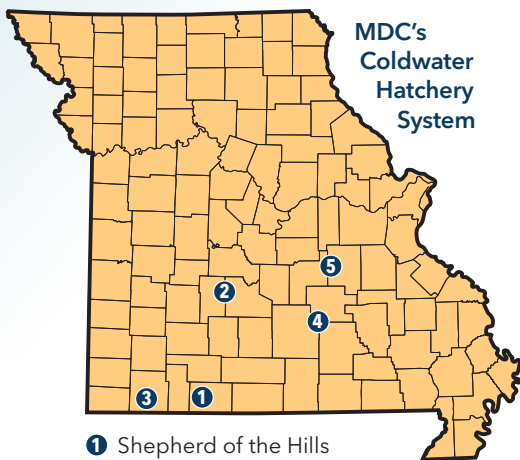
“People take this place (Bennett Spring State Park) and hold it near and dear to their hearts,” said the manager of MDC’s Bennett Spring Hatchery. “This place is a part of them.”

Trout fishing, he explained, is what has endeared this state park in Laclede and Dallas counties to generations of visitors.

Bennett Spring isn’t the only Missouri locale where trout provide tranquility. The state’s other three trout parks — Roaring River State Park (Barry County), Montauk State Park (Dent County), and Maramec Spring Park (Phelps County) — have long been destinations where trout fishing has been the primary method to rest, relax, and recharge.



Rainbow trout



MDC's
Coldwater
Hatchery
System

- 1 Shepherd of the Hills
- 2 Bennett Spring
- 3 Roaring River
- 4 Montauk
- 5 Maramec Spring

annually

MDC's five coldwater hatcheries produce
> 1.6 million fish



Missourians spend
1.4 million days
fishing for trout

GENERATES
\$104 million
in retail sales



\$187 million
economic impact

Fishing by the Numbers

Missouri's trout-fishing areas — which primarily consist of four trout parks, 2,080-acre Lake Taneycomo, and more than 100 miles of streams — get a steady flow of anglers throughout the year. Surveys show Missourians spend 1.4 million days fishing for trout each year. Missouri trout fishing generates retail sales of \$104 million annually and has an annual economic impact of \$187 million.

Rainbow and brown trout may be the lifeblood of this thriving fishing activity, but its heart is MDC's coldwater hatchery system. A network of five MDC-operated hatcheries — Shepherd of the Hills (Taney County), Bennett Spring, Roaring River, Montauk, and Maramec Spring — produce more than 1.6 million fish per year. The hatcheries' output is critical because very little natural trout reproduction takes place in the state.

The Science of Trout

Satisfying Missouri's appetite for trout fishing is a job that's unique, challenging, science-based, and technology-driven.

"Hatchery managers now need to be well-trained to operate a variety of complex equipment," said Roaring River Hatchery Manager Paul Spurgeon. "Fish-rearing equipment now includes oxygen injection, ultra-violet disinfection, pumping systems that include variable-speed computer-controlled output, and machines that provide computer-monitored growth predictions and feeding rates."

Raising trout from the egg stage to a stocking size of 12 inches is a two-year process that starts in the late fall or early winter. This is when eggs are taken from females and fertilized with milt (the trout equivalent of sperm) extracted from the males.

Fertilized eggs are put in specialized incubation holders, called "up-welling jars," where their progress is monitored and manipulated for the goal of hatching success. When hatching occurs in 22 days, the tiny sac-fry, or newborn fish, are put in special holding tanks inside the hatchery building. Here, the combination of frequent feedings and temperature and light regulation transform the sac-fry to swim-up fry in 14–18 days.

At approximately 40 days, the swim-up fry have reached the fingerling stage of development and now measure 1.5–4 inches in length. From fingerlings, they grow to sub-adults, and then to 12-inch fish that are ready for stocking.

A steady supply of cold water is the foundation of each of MDC's hatcheries. This is similar to the water found in a trout's native habitat of northern California and the Pacific Northwest, and it is an essential part of trout propagation. At Bennett Spring, Roaring River, Montauk, and Maramec Spring, cold water comes from naturally occurring springs. At Shepherd of the Hills, the cold water comes from the bottom of Table Rock Lake and gets released through Table Rock Dam to the hatchery and the adjacent Lake Taneycomo.



Milt is extracted from male trout



Eggs are extracted from female trout



Milt and eggs are gently combined

The hatcheries' output is critical because very little natural trout reproduction takes place in the state.

Monitoring and Manipulation

Cold water at the hatcheries may be a replication of the fish's ancestral habitat, but few of the other conditions mimic life in the wild. At a hatchery, a trout's life is one of constant monitoring and occasional manipulation.

"One way you can manipulate your fish production is by regulating temperatures," said Shepherd of the Hills Hatchery Manager Clint Hale. "The colder the water, the slower the hatch and growth; the warmer the water, the quicker the hatch and growth."

Food intake is another way to control growth, says Maramec Spring Hatchery Manager Wes Swee.

"Using a grade rack, we can separate the fast-growers from the slow-growers. Then we manipulate growth even more by the amounts of feed we provide," he said.

The end goal, Swee explained, is to have multiple pools of fish of different sizes, which in turn, would ensure a constant process of fish growing to stocker size throughout the trout park's summer season, March–October.



Brown trout

Finicky Eaters

Not just any fish food can be used at a trout hatchery.

"All our fish feed has to meet strict nutritional standards," Hale said. "It can only have so much fat, so much protein, and so much nondigestible material."

In addition to producing well-fed trout, hatchery personnel have to make sure their prized possessions stay healthy. As a result, at Shepherd of the Hills, Hale explained the fish are treated for parasites with medicated water, bacteria are treated with medicated feed, and other diseases are treated with dip vaccinations. He added that all MDC hatcheries have health procedures and protocols they practice on a regular basis.



Trout are loaded into the stocking truck



Grade racks are used to separate the fish



Fingerlings continue to grow



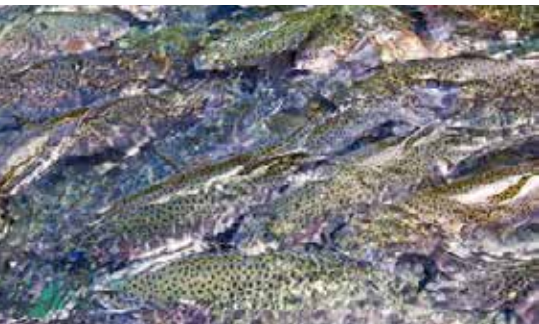
Fertilized eggs are counted



Fertilized eggs in an up-welling jar



Sac-fry develop in a holding tank



National Fish Hatchery

Missouri is home to the oldest operating federal fish hatchery in the United States. Located in the Ozark Mountain Region in southwest Missouri, the U.S. Fish and Wildlife Service (USFWS) established the Neosho National Fish Hatchery in 1888. Over the years, more than 130 different species of fish have been raised there, but today the hatchery rears primarily rainbow trout, pallid sturgeon, and Topeka shiners. It is one of 70 hatcheries operated by the USFWS with a mission to conserve and protect our nation's fishery resources.

Duty Calls Year-Round

Technology is part of hatchery operations in areas other than fish-rearing buildings. MDC's hatcheries feature specialized mowers that cut vegetation beneath the surface of the water at the trout parks. There are also crane-hoist trucks, fish-loading towers, specialized filters that can block particles as small as 60-millionths of a meter.

Put it all together and you have a job that's unique and fascinating and has duties throughout the year.

"Fish production is year-round," said Montauk Hatchery Manager Tom Whelan. "Spawning at Montauk is September through December. We stock the park daily from March through October. November through February is the catch-and-release season. In February we are getting ready for the March 1 trout opener and the summer season that follows. In October we are getting ready to stock the CAP (Community Assistance Program) and the winter urban lakes (a program at select urban sites around the state).

"All five hatcheries are staffed daily," Whelan continued. "The monitoring of flowing water, the monitoring of fish in the rearing systems, and overall site security are the main reasons hatcheries are staffed around the clock. Even something that seems as minor as trees dropping their leaves in the fall can cause problems with water flow. Thirty minutes without adequate water flow can result in a major loss of fish."

Jacks of All Trades

Because it doesn't take long for small issues to become big problems at a fish hatchery, managers and their staff have to be skilled in more than growing fish. When a problem arises, they have to be ready to fix it.

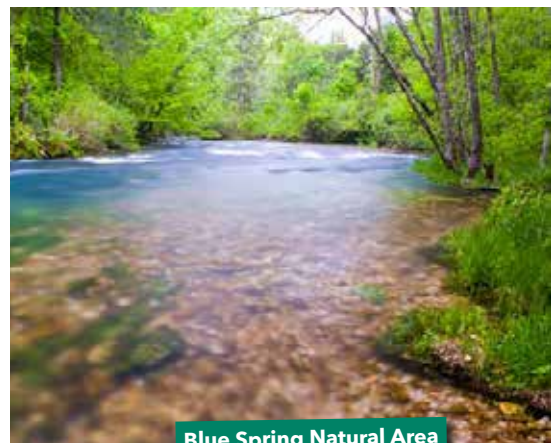
"As technology is added to the hatcheries, plumbing and electrical problems need to be trouble-shot and repaired immediately — even if that means in the middle of the night — to keep the fish alive," said James Civiello, MDC's hatchery systems manager for the entire state.



MDC staff use float tubes to stock rainbow trout at the Eleven Point River



MDC staff transport trout to wild Missouri waters



Blue Spring Natural Area

Places To Go

Missouri has a wealth of trout waters, including red, white, and blue ribbon areas. To find a body of water near you, visit short.mdc.mo.gov/Zou.

Sharing is Caring

Despite the best surveillance, monitoring, and maintenance, problems do occasionally occur that affect a hatchery's production for that year. When issues arise or demand at one site simply strips supply, MDC's other coldwater hatcheries are available to help. Fish sharing between hatcheries is a frequent annual occurrence. Thus, it's not uncommon for one trout to have more than one hatchery home over the course of a year.

"Sometimes we trade trout to help out another hatchery after a loss," Havens said. "Sometimes hatcheries can't raise enough fish due to space constraints. We help each other as much as we can, whenever we can."

Spurgeon agreed.

"Fish are traded routinely," he said. "Our strength can help another hatchery's temporary weakness and that goes around the table. The fish are constantly moving as a unit. That's normal — completely normal."

Civiello continued. "Flooding, drought, disease, and predation in any combination can impact any one hatchery at any time," he said. "Our fish production is shared statewide to ensure the number of fish of usable size are available throughout the year. The hatchery teams' surpluses of fish at one location will compensate for losses of another."

Though the challenges of a hatchery manager's job are many and never-ending, all agreed the rewards make the work worthwhile.

"To me, the greatest reward is being able to see the fruits of your labor every day," Whelan said. "Seeing people catch fish you have raised and realizing that you played a small part in helping to create a memory that some angler and someone close to them experienced — a memory that they might continue to

share and experience with others for many generations to come — that's the best thing about my job." ▲

Francis Skalicky is the southwest regional media specialist for the MDC. He lives in Springfield where he enjoys the Missouri outdoors with his family.





the Eastern Screech-Owl

A
SMALL RAPTOR
WITH A BIG
PERSONALITY

by Angie Morfeld





"It sounded like a woman was being murdered."

➔ That's how the sound was described. It came in spurts — one or two calls followed by silence. Then a few more. And the sound was on the move — through the woods, from one side to the other, it would go. Residents were terrified. Upon further investigation, there was no need for alarm. It was nothing more than an eastern screech-owl (*Otus asio*) on its nightly hunt.

This is a common reaction to hearing this pint-sized raptor for the first time. Measuring in at just 8 inches, the eastern screech-owl is one of the smallest raptors, second only to the northern saw-whet owl. In fact, from beak to tail, robins and blue jays stand taller. But don't let its diminutive size fool you. From its appetite to its attitude and especially its voice, the eastern screech-owl lives large and loud.

Hoo's Calling

Screech-owls have a loud voice, but their calls are rarely described as a "screech" unless they are angry or startled. They trill, whinny, bark, chuckle, peep, hiss, or hoot.

Owl couples trill back and forth to each other when they're courting and while they're searching for a place to nest. If you hear this duet, it's easy to distinguish the

males from the females. Male screech-owls, though smaller, have much deeper voices.

Owls call any time of day, but they are most vocal during the twilight and moonlit hours. One of the easiest ways to hear the eastern screech-owl is to drive to a quiet place in the country, away from the noise of traffic, and stop along the road, preferably by open land, forests, or a body of water.

Looks Can Be Deceiving

This species is the only small, yellow-eyed owl with ear tufts in Missouri, but don't rely on those prominent points for identification purposes. Eastern screech-owls can lower their tufts and conceal them from view.

More reliable identification information includes their coloring. Screech-owls can be gray, brown, or red, though red is the least common in Missouri. Regardless of their color, all screech-owls are patterned with bands and spots that aid in camouflage amongst the trees.

The eastern screech-owl is a stocky bird with a large head, no neck, and a wingspan of 20–22 inches. Its wings are rounded and its tail is short and square.

Owls are most vocal during twilight and moonlit hours.

Seeing Triple

In Missouri, screech-owls come in three colors morphs: gray, red, and brown.





Northern saw-whet owl

Screech-owls are Missouri's second-smallest bird of prey. Only northern saw-whet owls are smaller.

Home Sweet Home

Screech-owls prefer to make their nests in dead, hollow tree cavities or holes hammered out by woodpeckers. In fact, trees, specifically cedars and pines, define screech-owl habitat. These raptors can be found in open woodlands, forests, rural woodlots, city parks, orchards, or deep woods, and prefer areas with water nearby. Eastern screech-owls are common in towns and suburbs, and they may fledge more young than their rural counterparts due to fewer predators.

Trees are important to screech-owls for another reason — camouflage. After a long night of hunting, these owls like to come back to their nest to rest and get away from predatory hawks and pesky songbirds. Once an owl closes its big, yellow eyes, the camouflage pattern of its feathers easily blends in with the tree's bark. Some screech-owls take their disappearing act a step further and raise a wing to hide their beaks.



Building a Family

Eastern screech-owls are mostly monogamous — a male and female mate and remain together for life. However, some males will wander and mate with another female. The second female may move into the nest, removing the first female, lay her own eggs, and incubate both clutches.

Typically, four to five eggs are laid from March through May and incubated for 26 days. Owlets are raised for 28 days.

When young owls first leave the nest, their mother defends them fiercely. Cats, squirrels, and humans who wander too close to the helpless young are likely to get dive-bombed or scratched by the female owl's talons.



The eastern screech-owl is a stocky bird with a large head, no neck, and a wingspan of 20-22 inches.



How to Find Screech-Owls

Though screech-owls are elusive and mostly active at night, there are some ways to help pinpoint their location.

→ Look for flocks of smaller birds.

Listen for a commotion involving blue jays, chickadees, and titmice. Songbirds often swoop and squawk at owls to alert other birds of a predator's whereabouts and teach young birds that owls are dangerous. This behavior is called mobbing.



Tufted titmouse

Blue jay

→ Listen for screech-owl trills and whinnies at night.

Screech-owls are especially noisy during a full moon and before stormy weather.

Food Fight

For small raptors, screech-owls have a voracious appetite and they aren't picky. In fact, the list of what a screech-owl will eat is longer than that of any other North American owl. More than 250 kinds of critters make the cut — including beetles, grasshoppers, moths, mice, shrews, moles, crayfish, fish, frogs, and small birds. Animals as big as squirrels and as small as snails go down their gullets. Screech-owls have also been known to tangle with small falcons, pluck fish from shallow pools, and ambush bats on the wing.

Screech-owls, like other owls, have an exceptional sense of hearing and sight, which are used to target their prey. But unlike other owls, this species hunts tiny animals, like insects and smaller rodents, making them unique amongst their raptor family.

Once food is brought back to the nest, it's every owl for himself. Nest mates fight each other for food, sometimes killing their smallest sibling. This behavior is called siblicide and is not uncommon amongst hawks, herons, and other owls. It's especially common during periods of poor breeding conditions when food is scarcer and siblings have to fight for what is available.

For more information about eastern screech-owls, visit mdc.mo.gov/field-guide. ▲

Angie Morfeld is an editor with the Missouri Conservationist. She enjoys learning about Missouri wildlife. Portions of this article came from Little Owl, Big Attitude by Matt Seek, featured in the February 2014 issue of Xplor.

➔ Search the base of trees for owl pellets.

These pellets are a sure sign of roosting screech-owls up above. Screech-owls gobble prey whole and regurgitate the bones, fur, teeth, insect shells, and feathers into oval-shaped, grayish-brown pellets once or twice a day.



➔ Look for woodpecker holes and tree cavities on cold, sunny days. Bundle up for the cold and head outside. You just may find a sleepy screech-owl soaking up the warm winter sunshine.



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Oh Deer, Some Bunny Ate My Veggies!

A NEW LOCATION, FENCING, AND SCARE TACTICS CAN
SAVE YOUR GARDEN FROM DEER AND RABBITS

by Mark Van Patten | photographs by Noppadol Paothong

I scanned my vegetable garden for one surviving green bean plant. Just two days ago, I had stood proudly admiring my handiwork after hoeing, raking, tilling, and planting. Most all of the seeds I had planted germinated and pushed from the fertile soil toward the sun. I thought to myself, this is going to be a bountiful year.



Who bit this bean plant?
Find out on Page 26.

Now all I saw was a few stems poking out of the ground and very distinct tracks in the moist soil. I was certain a doe and her fawn had filled their bellies from my hard work. After looking closer at the stubble, I noticed another set of tracks aside from those of the deer. A rabbit had also enjoyed a free meal at my expense. With the exception of insects, few pests are as destructive to your garden as deer and rabbits. Whether they appear alone or in small herds, deer can wipe out entire vegetable gardens, flower gardens, and young trees and shrubs, and they can do it virtually overnight. Yet even folks who are plagued by deer admit to a curious love/hate relationship with them. After all, they're a beautiful, remarkable sight from your back deck. Rabbits won't wreck your garden in a night, but they can decimate a row of newly sprouted green beans before you can say, "Cute, cuddly cottontail." Rabbits are equally fun to watch from your back deck. Fortunately, what works for deer may work for rabbits, too.

Location, Location, Location

There are various ways of critter-proofing your garden, including the best option: build a fence. But first you need to determine where to put your garden. A healthy garden has three basic requirements: quality soil, no less than eight hours of continuous sunshine, and water for the dry days of summer.

In considering the



The author points to a corn plant with a ragged tear, a sure sign of deer damage.

location for your garden, you also need to be aware of game trails. As vegetarians, deer will frequent an area that has plenty of tasty greens to eat. Generally, plots of land that produce native flora are also ideal for your garden. However, if you choose to put in a garden along these heavily traveled areas, be prepared to install expensive fencing.

Good Fences Make Good Gardens

Many kinds of fencing materials will deter deer. Some examples are chicken wire, field fencing, welded-wire fencing, and electric-net fencing. Whatever fencing material you choose, you must think high or wide. An 8-foot-high fence will do the job. That will require specialized posts and fencing that can be very expensive. Deer can jump a 6-foot-high

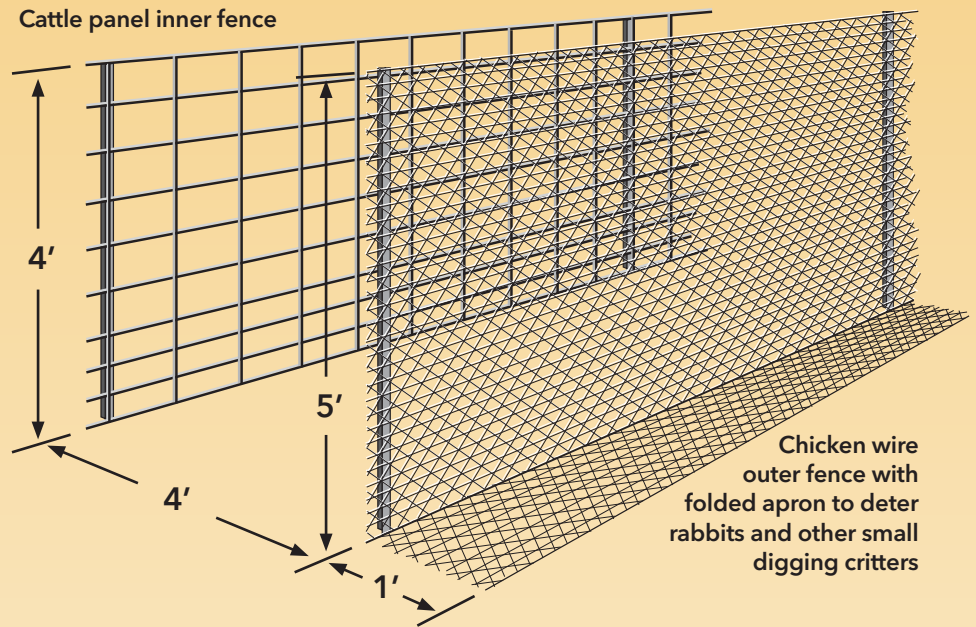
fence, but they are less likely to try if there are two rows of fencing — in other words, a fence within a fence. A simple 5-foot-tall chicken wire fence will suffice if you add an interior perimeter fence approximately 3 to 4 feet from the outer perimeter fence. I like using 16-foot by 4-foot-high cattle panels for the interior fencing because they also serve as trellises for tomato plants, cucumber and squash vines, and pole green beans. Cattle panels don't have to be continuous if they are spaced less than 7 feet apart around the interior perimeter. This requires planning when you're considering what and where to plant within the garden. Structures like bean poles, raised beds, tomato cages, or trellises along the fence interior will cause the deer concern about a clean landing and possibly deter them from making the jump.



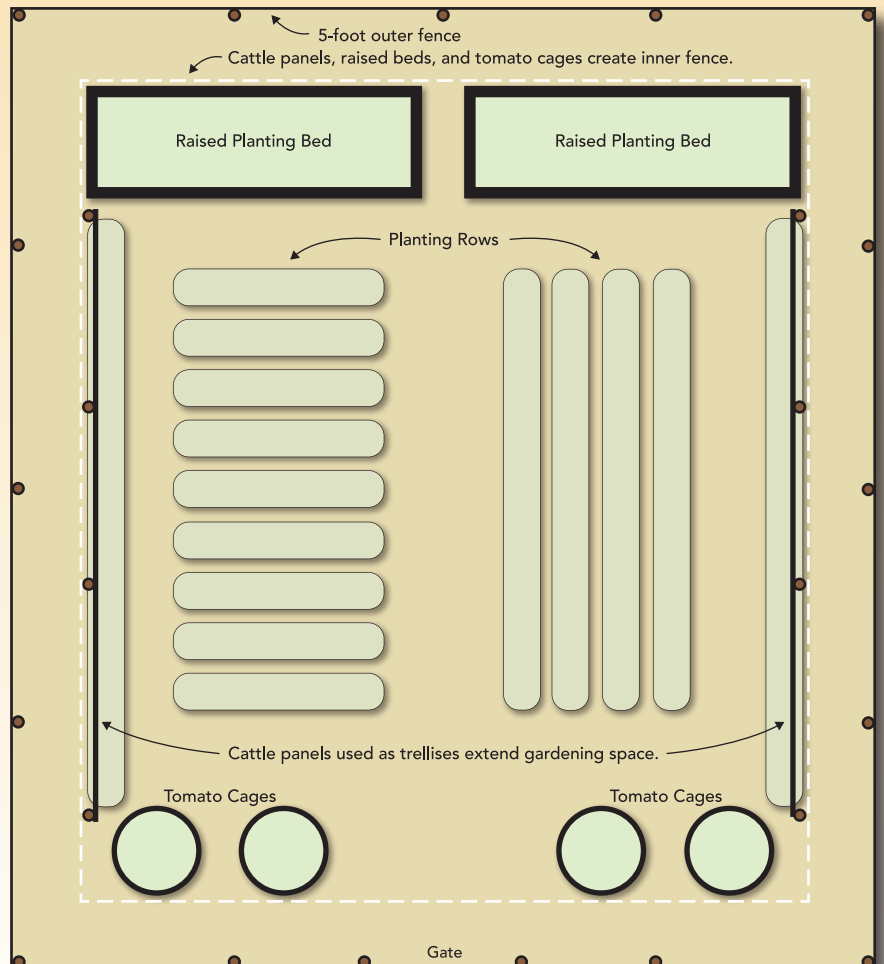
Eastern cottontail rabbit



The double fence defense



Sample garden plan using structures to create a double fence



Rabbit-Proof Your Fence

If you have deer, you probably have rabbits, too. Your fence should have an apron of at least 10 inches of closely woven material bent out and away from the fence along the bottom. Chicken wire is your best option for keeping out smaller plant-eating critters like rabbits and turtles. It is a good idea to bury the wire apron to keep critters from digging under it. A 6-foot-tall roll of chicken wire will provide a 5-foot fence with a 12-inch apron.



Some bar soaps contain scents that deer don't like. Grate soap and fill small bags to hang around the perimeter of the garden as a deterrent.

Use Scents-ible Deterrents

You have chosen just the right spot. You put up a perimeter fence but the cost of an interior perimeter fence is a bit out of your budget. What else can you do? Certain plants have a scent or taste that deer do not like, and if you plant them along the perimeter they can act as a deterrent. Allium (onions), Baptisia (wild or false indigo), lavender, and Salvia (sage family) can work and will provide a colorful border when in bloom. Another plant that most gardeners include in their plantings is asparagus,

which is also considered a deer repellent. Since it is perennial, gardeners usually plant it along the fence, out of the way of spring tilling. A good herb garden on the inside of the fence that includes garlic, sweet basil, rosemary, and oregano can act as repellent, too. As a disclaimer, I must say that in dry years when food is scarce, all bets are off on plants working as a repellent.

Some bar soap manufacturers have inadvertently added scents to their product that deer do not like. Two specific brands are Ivory and Irish Spring (original scent). I like to grate the soap and put it in small bags. An old sock with a hole in the heel works great. Who wants to darn socks anyway? Fill the toe section with your soap of choice and tie it to the fence. Place soap bags a few feet apart around the entire perimeter of the garden. I have heard that the scent of human hair works as well as soap bags at deterring deer. I haven't tried this, but other gardeners swear by this tactic. Visit a local barber or beauty shop just before closing and ask if you can have the hair swept from the floor for that day. Bring your own sack and use rubber gloves when handling the hair. Spread it liberally around the

outer perimeter of your fence. You can also place some of the hair in the same sock bags as your soap. You will need to follow up with subsequent application of hair during the growing season because it will lose its scent after a few weeks.

Other scents deer dislike are coyote urine and rotten eggs. Gardeners with a poor sense of smell can buy these commercially produced scents at sporting goods stores or online. Some products might not be eco-friendly, so be sure to check the labels before purchasing. Again, in dry years or where food is scarce, such as urban areas, scent deterrents may have little to no effect.

Who Bit the Bean Plant?

Here are some clues: Rabbits have both a lower set of teeth and very sharp upper incisors. When they bite a young plant, the cut is clean. Deer have teeth on the lower jaw but only a hard palate on their upper jaw. Instead of a clean cut, the bite will be jagged or torn. The bean plant on Page 23 shows a clean cut, so a rabbit is the culprit in this case.

Try Scare Tactics

Deer don't like sudden sounds or rapid movements. This makes them vulnerable to homemade or commercial scare tactics. For an easy homemade noise maker, tie a lightweight aluminum pie plate directly to the fencing with a foot-long twine. A slight breeze will move the plate, causing it to bump continuously against the fence. The flash of the aluminum also creates highly visible movement. Used CDs work as well. I prefer the pie plates because their

increased surface area catches more wind and they make a loud clacking sound when they strike the fence.

Commercially available scare tactics offer motion-detection triggering and emit loud, high-frequency sounds. These work better than continuous sounds. Deer will adapt to and ignore continuous sounds if no threat is perceived. It is recommended you change strategies often. Another commercial scare tactic is the motion-activated sprinkler. It shoots a fast stream of water that will make a deer think twice about invading your tomatoes.

Wildlife are only afraid of something while it's new. If they determine a tactic has no effect on them, whether it's the scent of a predator, a flash of light,

or a blast of sound or water, they will continue to do as they please. For this reason, a good outdoor dog is one of the best scare tactics I know of.

Success at Last!

After replanting my green beans a third time and building a sturdy fence, I used the soap-in-a-sock method as an additional perimeter defense tactic. I also hung aluminum pie plates on my fence. The deer and rabbits were kept at bay, and I had a successful planting and harvest from the garden this year.

Here's one last tip. If you can't afford to build a sturdy, permanent fence and all your other efforts to curtail the problem have failed, consider these two options. Next year, move your

garden away from deer trails. Then put up a deer stand over your abandoned garden. In November, fill your slow cooker with some potatoes, onions, carrots, and herbs from your new garden — along with a nice venison roast. This will make for a very satisfying fall feast. ▲

Mark Van Patten is a retired MDC fisheries stream biologist. He and his wife, Regina, three dogs, one cat, and 45 chickens live along the upper Current River in Shannon County.



Online Tips for Controlling Nuisance Wildlife

Learn how to control 25 kinds of wildlife that can become a problem in Missouri, and explore ways to prevent wildlife from becoming a nuisance at short.mdc.mo.gov/Z5L.

White-tailed deer

Get Outside

in FEBRUARY →

Ways to
connect
with nature



Groundhog

1

GROUNDHOG DAY

The **groundhog** emerges from its burrow on Feb. 2 as the world watches in anticipation. Will he see his shadow or won't he? If he sees his shadow, keep those coats and gloves handy because we are in for another six weeks of winter. If it's a shadowless appearance, that means an early spring.



Raccoon

Beaver



Mink



Muskrat



Otter

2

I SPY TRACKS

A fun family activity on a cold February day — identifying animal tracks in the snow. For tips and pictures of mammal prints to help get you started, visit short.mdc.mo.gov/ZJm.



River otter

3

SOUTHEAST REGION

Maple Sugaring

Saturday, Feb. 17 • 1-4 p.m.

Cape Girardeau Conservation Nature Center,
2289 County Park Drive,
Cape Girardeau, MO 63701

No registration required,
call 573-290-5218 for more information
All ages

Discover one of the forest's sweetest gifts. Maple sugaring is rich in history and still practiced today. Learn the history, equipment, and process of making maple syrup.



Natural Events to See This Month

Here's what's going on
in the natural world.



Mink
begin
breeding



Eastern
tiger
salamander
courtship
begins



Opossums
begin
breeding
in wooded
areas along
streams

4 **SOUTHWEST REGION** Vulture Venture

Saturday, Feb. 24 • 12-5:00 p.m.
Shepherd of the Hills Conservation Center,
483 Hatchery Road, Branson, MO 65616
No registration required,
call 417-334-4865 for more information
All ages

This event includes hourly presentations
featuring Socrates, a live turkey vulture
from Springfield's Wonders of Wildlife
museum, indoor activities, and outdoor
vulture-viewing opportunities. The last
presentation begins at 4 p.m.



Turkey vulture

Renew your HUNTING *and* FISHING PERMITS TODAY



5

CHIPMUNKS APPEAR

Chipmunks come out of
hibernation this month,
and you don't have to
walk deep in the woods
to find these pint-sized
mammals. They are active
during the day near city
homes, farmhouses,
shrubby, wooded banks,
and timber borders.



6 LOVE IS IN THE AIR

With Valentine's Day just
around the corner, love is in
the air for humans and animals
alike. **American woodcocks**
begin their courtship in southern
Missouri. At dusk, listen for their
nasal "peenting" in brushy fields.



American woodcock



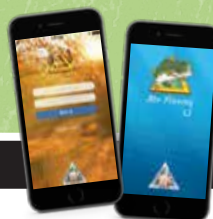
Walleye
move into
shoals for
spawning



Watch for the
flap and glide
of mourning
doves' courtship
flights

Annual permits expire at the end of February.

Buy Missouri hunting and
fishing permits from vendors
around the state, online at
mdc.mo.gov/buypermits, or
through MDC's free mobile
apps, MO Hunting and
MO Fishing.



Serving nature and you®

Places to Go

NORTHEAST REGION

Ranacker Conservation Area

Shake off winter with a walk in the woods

by Larry Archer

✧ February has a reputation for unpredictable weather. Whether the cold is hanging on or letting go, the trails at Ranacker Conservation Area (CA) provide Missourians the opportunity to get out and shake off any rust that may have set in over the winter.

Ranacker's main trail, technically a field road, runs the length of the area, with several spurs allowing access to much of its mostly wooded 1,831-acres. Parking lots off county roads on both the north and south ends provide several points of entry from which to start a day of hiking or off-road biking. Depending on weather, one might even come across a mounted visitor or two, according to Ranacker's Manager Michael Flaspohler.

"We have a pretty large number of special use permits that we write for groups that want to go horseback riding," Flaspohler said. "That's a really popular thing starting this time of year, especially with the nicer days and warmer weather we sometimes have."

Whether hiking the trails, shooting at the range, or spending the night camping, Ranacker CA offers a variety of ways to say goodbye to winter and get a jump-start on spring.



One of several watering holes at Ranacker CA provides sustenance for area wildlife, while Peno Creek (below) provides fishing opportunities for visitors.



WHAT
TO
LOOK
FOR
WHEN
YOU
VISIT



Coyote



Wild turkey



Eastern gray squirrel



White-breasted nuthatch



RANACKER CONSERVATION AREA

consists of 1,831 acres in Pike County.
From Frankford, take Highway 61 south 3 miles,
then Route RA west.

N39° 27' 54.4248" | W91° 17' 24.576"

short.mdc.mo.gov/Z5V 573-248-2530

WHAT TO DO WHEN YOU VISIT



Bicycling Field road open to bicycling. Also open to hikers and horseback riders.



Bird Watching The eBird list of birds recorded at Ranacker CA is available at short.mdc.mo.gov/Z5H.



Camping Allowed on and adjacent to all area parking lots except for the shooting range parking lot, but no amenities are provided. Walk-in camping allowed year-round except during deer and turkey firearms season.



Fishing Bass (fair), catfish (fair), sunfish (good), suckers (fair).



Hiking No designated trails, but much of the area is accessible via field roads.



Horseback Riding Contact the area office for special use permit information.



Hunting

Deer (good) and **turkey** (good). Deer and turkey regulations are subject to annual changes. Please refer to the *Spring Turkey* or *Fall Deer and Turkey* booklets for current regulations.

Dove (good).

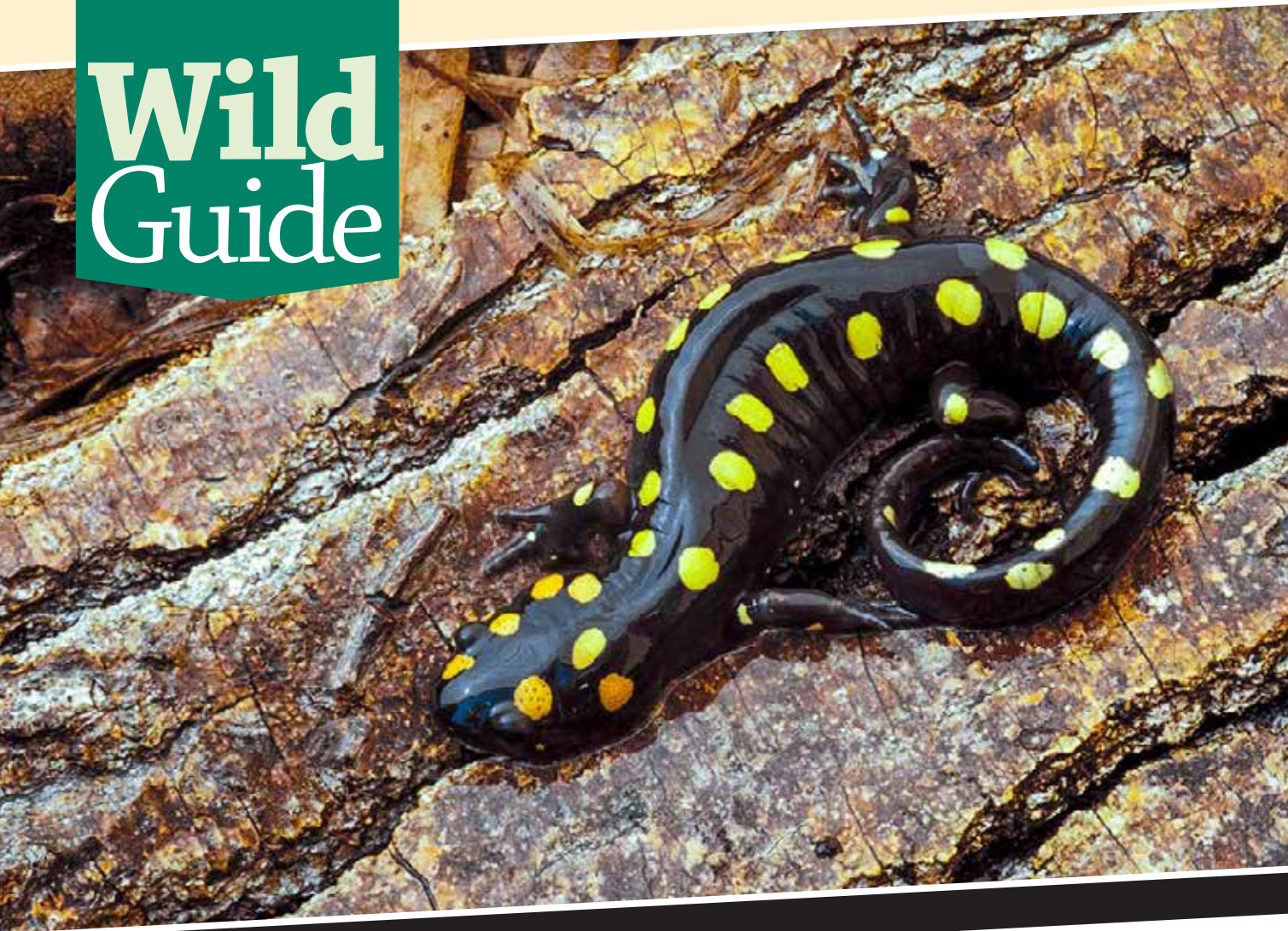
Quail (fair).

Rabbit (fair).

Squirrel (good).



Shooting Range available for rifles and handguns. Target distances from 25 yards to 100 yards.



Spotted Salamander

Ambystoma maculatum

Status

Locally common

Size

Length: 6-7¾ inches

Distribution

Throughout the southern two-thirds of the state, except the eastern part of the Bootheel



Did You Know?

Salamanders offer much for biologists to study. The eggs form a symbiotic relationship with algae. Algae provides oxygen for the embryo and the growing larva supplies nutrients to the algae.

This species may be hard to spot in Missouri. The spotted salamander usually stays hidden under logs or rocks, inside piles of dead leaves, or in burrows of other small animals. And though its name says otherwise, the spotted salamander may not have spots at all, making it even harder to identify.



LIFE CYCLE

Considered early spring breeders, courting salamanders, sometimes numbering in the hundreds, engage in a nuptial dance in shallow, fishless ponds during the first warm rains in February to mid-March. Males deposit a packet of sperm on jellylike stalks, and the females pick it up. The eggs are fertilized as they are laid, within one to two days of courtship. The larvae hatch in a month and live in water until the end of summer.



FOODS

They search at night for worms, insects, spiders, and land snails.



ECOSYSTEM CONNECTIONS

Though spotted salamanders are voracious predators of insects, worms, and slugs, they, along with their eggs and juvenile forms, provide food for many other hungry animals.

JIM RATHER

Outdoor Calendar

✱ MISSOURI DEPARTMENT OF CONSERVATION ✱



Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.

FISHING

Black Bass

Impounded waters and most streams north of the Missouri River:

Open all year

Most streams south of the Missouri River:
May 27, 2017–Feb. 28, 2018

Paddlefish

Statewide:

March 15–April 30, 2018

On the Mississippi River:

March 15–May 15, 2018

Sept. 15–Dec. 15, 2018

Trout Parks

Catch-and-Release:

Nov. 10, 2017–Feb. 12, 2018

TRAPPING

Beaver, Nutria

Nov. 15, 2017–March 31, 2018

Otters, Muskrats

Nov. 15, 2017–Feb. 20, 2018

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.

HUNTING

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crow

Nov. 1, 2017–March 3, 2018

Deer

Archery:

Sept. 15–Nov. 9, 2018

Nov. 21, 2018–Jan. 15, 2019

Firearms:

▶ Early Youth Portion (ages 6–15):

Oct. 27–28, 2018

▶ November Portion:

Nov. 10–20, 2018

▶ Late Youth Portion (ages 6–15):

Nov. 23–25, 2018

▶ Antlerless Portion (open areas only):

Nov. 30–Dec. 2, 2018

▶ Alternative Methods Portion:

Dec. 22, 2018–Jan. 1, 2019

Rabbit

Oct. 1, 2017–Feb. 15, 2018

Squirrel

May 27, 2017–Feb. 15, 2018

Turkey

Archery:

Sept. 15–Nov. 9, 2018

Nov. 21, 2018–Jan. 15, 2019

Firearms:

▶ Youth (ages 6–15): April 7–8, 2018

▶ Spring: April 16–May 6, 2018

▶ Fall: Oct. 1–31, 2018

Waterfowl

See the Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.



ILLUSTRATION: MARK RATHIEL



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Take time to discover nature at night. This is the St. Francis River, captured at twilight from atop Lee's Bluff, in Madison County.

📷 by **Dan Zarlenga**